COMPSYS 723: EMBEDDED SYSTEM DESIGN

Nilesh Magan and Kathryn Jaggar

Department of Electrical and Computer Engineering University of Auckland, Auckland, New Zealand

Abstract

In this report, we present the design of a cruise controller in Esterel. The cruise controller is a safety critical system making it an excellent candidate for use of this synchronous programming language. We first describe the specification and present the according Finite State Machine. We discuss a multi-module Esterel design and present the various interfaces. Finally, we explain our approach to testing this system.

1. Introduction

The cruise controller controls the cruise speed of the vehicle based on the speed input requests from the user, braking or accelerating actions of the user and the predefined speed limits (maximum and minimum). Control operations include regulating cruise speed at the set value, increase cruise speed when the quick accelerate button is pressed, and visa versa for the quick deceleration button press. In this report, we will first specify the design and then present our Esterel mapping of this specification. We will illustrate the use of several of the Esterel language features which have allowed concurrency and synchronisation. We also illustrate the use of data handling functions in C, the use of multiple modules, the connection of ports and of interfaces.

The organization of this report is as follows. Section 2 presents the specification of the cruise controller. In section 3 we present the Esterel design, including the interfaces, top-level module and causality. In section 4 we present our approach to testing and finally, in section 5, we present our conclusion.

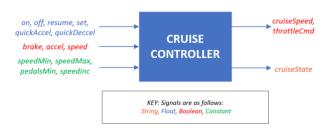
2. Specification

Described in figure 1 is the overall input-output interface of the system. User input actions include a number of buttons and accelerator/ brake pedal actions. The remaining input is the vehicles current speed state. The cruise controller reads the various inputs and determines which cruising state should be entered.

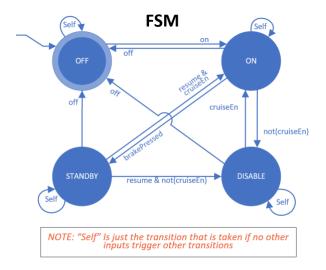
Outputs of the system include cruise speed, throttle command and the current cruise state. These are also presented in figure 1. The cruise speed represents the current speed the vehicle is traveling at, the throttle command represents a percentage of how much fuel is

supplied to the engine, and the cruise state represents the which of the four cruising states.

CONTEXT DIAGRAM



The Finite State Machine (FSM) in figure 2 presents the four states (Off, On, Standby and Disable) as well as the conditions that must be met in order to reach each state. In the Off state the cruise controller is not enabled and the vehicle speed is not regulated. Thus it is driven by the user's input directly. If the on button is pressed then the system moves to the On state, but all other button presses have no effect. Once in the On state the cruise controller is enabled and the cruise speed will be regulated. This speed is set to the value of the input speed when the on button was pressed. So long as the accelerator or brake pedal is not pressed the controller will remain in the On state. If the accelerator is pressed, or the cruise speed is outside of the predefined maximum/minimum speed limit, then the controller transitions to the Disable state. In this state the cruise speed will remain constant while the throttle command will be driven by the accelerator input. The controller will return to the On state when the accelerator is no longer being pressed and the speed is within the defined limits. Similarly, the controller will transition from the On state to the Standby state if the brake pedal is pressed. In this state the cruise speed will also remain constant and the throttle command will be driven by the accelerator pedal. A transition from this state requires a press of the resume button and the destination will be determined based on if the accelerator is pressed and if the speed is within the defined limits. The transition will either be to the On state or to the Disable state. In all states a press of the off button will cause a transition to the Off state.



In any of the On, Standby or Disable states the set button may be pressed to update the cruise speed to the speed input, and the quick accelerate/decelerate buttons will cause an increase or decrease of the cruise speed by a predefined amount when pressed.

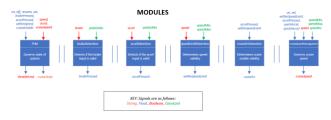
3. Design in Esterel

The Esterel design of the cruise controller follows directly from the previous specification. There are six modules making up the Esterel program, and one top-level named cruiseControl.

- Module 1, FSM: This modules executes the FSM previously described which transitions from one state to the next depending on various inputs and internal signals received from other modules. The FSM is depicted in figure 2. The FSM is emulated using state variables and traps to emulate go-tos.
- Module 2, brakeDetection: This module performs a simple comparison of values to determine if the brake pedal has been pressed. The brake input must exceed a predefined percentage value in order for the brake pressed to be registered.
- Module 3, accelDetection: Similar to brakeDetection this modules performs a simple comparison of values to determine if the acceleration pedal has been pressed. The accel input must exceed a predefined percentage value in order for the acceleration pressed to be registered.
- Module 4, speedLimitDetection: This module performs a simple value comparison between the speed input and the minimum and maximum speed limit values. It determines if

- the current speed is within the predefined speed limits.
- Module 5, cruiseEnableDetection: This module determines if the current state of inputs allow for the cruise state to be enabled (ie not disabled). This is determined based on whether the accelerator is pressed, and the vehicle is within the speed limits. This is determined using the present command.
- Module 6, cruiseSpeedManagement: This module handles updating the cruise speed appropriately depending on various inputs and internal singles. The cruise speed must be set when either the on or set buttons are pressed, to a value within the speed limit. Thus the cruise speed may be set to the speed input or saturated to either of the maximum and minimum speed limit values. Similarly, the cruise speed should be updated by the predefined amount when either the quickAccel or quickDecel buttons are pressed. Again the cruise speed should be set to either the speed input +/- the predefined amount or saturated to the maximum and minimum speed limits respectively.

Each of the above-explained modules execute as concurrent threads as defined in the top level cruiseControl module. This module also performs the port mapping of the remaining six modules.



3.1. Interfaces

The interface of a module includes data type declarations, constants, functions, input and output signals. A visual representation of the module interfaces is depicted in figure. Our design includes the following interfaces;

The interface of the top level module includes the system inputs and outputs, in addition to internal singles used throughout the design by other modules.

```
module cruiseControl:
    input on, off, resume, set, quickDeccel, quickAccel;
    input accel := 0.0f : float;
    input brake := 0.0f : float;
    input speed := 0.0f : float;
    output cruiseSpeed := 0.0f : float;
    output throttleCmd := 0.0f : float;
    output cruiseState := 1: integer;
    signal accelPressed, brakePressed, cruiseEnable, withinSpeedLimit
```

Note here that the internal signals defined above are now inputs or outputs of other various modules amongst the system inputs and outputs. The interface of the FSM module below also includes a function which allows for data handling within C.

```
module FSM:
    function regulateThrottle(boolean, float, float): float;
    input on, off, resume, set;
    input brakePressed;
    input accelPressed;
    input withinSpeedLimit;
    input cruiseEnable;
    input speed: float;
    input accel: float;
    input cruiseSpeed: float;
    output throttleCmd: float;
    output cruiseState: integer;
```

The following module interfaces include constant values in addition to inputs and outputs. These constants are predefined and used as reference points for comparisons.

```
module brakeDetection:
    input brake: float;
    output brakePressed;
    constant pedalsMin = 3.0f : float;

module accelDetection:
    input accel: float;
    output accelPressed;
    constant pedalsMin = 3.0f : float;

module speedLimitDetection:
    input speed : float;
    output withinSpeedLimit;
    constant speedMin = 30.0f : float;

module cruiseEnableDetection:
    input accelPressed, withinSpeedLimit;
    output cruiseEnableDetection:
    input accelPressed, withinSpeedLimit;
    output cruiseEnableOtection:
    input accelPressed, withinSpeedLimit;
    output cruiseEnable = 10.0 f : float;
    input speed : float;
    output cruiseSpeedManagement:
    input speed : float;
    output cruiseSpeed : float;
    constant speedMin = 30.0f : float;
    constant speedMax = 150.0f : fl
```

3.2. The Top Level Module

The purpose of the top level module cruiseControl is to run the remaining six modules in parallel. This required interconnecting the interface ports correctly such that the output of one module becomes another modules input and visa versa. In order to use the signal renaming approach, all inputs, outputs, and singles must be declared in the top level interface, as seen previously.

3.3. Causality

When sharing signals between modules it is important to ensure the composition is still causal. We have achieved this in a number of places through the use

of Esterel's pre command. This command uses the previous value/state of the signal ensuring causal cycles do not exist. An example of this can be found in the CruiseSpeedManagement module. When emitting the cruiseSpeed value often we must know the cruiseSpeed value, and in these instances, we use the pre command.

4. Testing

A number of test cases were developed in order to ensure this safety critical system was functionally correct. Our approach to testing involved the development of testing input and output vectors in an excel document such that we could manually test using the Esterel GUI. Through this testing, we were able to find a number of bugs. Due to the short nature of tests and the use of the GUI tree window we were able to easily find the cause of our errors.

TEST 3 - Move from OFF to ON to DISABLE to OFF											
On	Off	Resume	Set	QuickAccel	QuickDecel	Accel	Break	Speed	CruiseSpeed	ThrottleCmd	CruiseState
TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	0	0	35	35	0	2
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	20	0	35	35	20	4
FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	0	0	35	35	0	1
FALSE	EALSE	FALSE	FALSE	FAISE	FAISE			35	35		1

In total 15 tests were created, which can be found in the appendix. One example is depicted in figure 4. Each test includes a test number and short description of what is being tested. Inputs are displayed on the left and expected outputs on the right. Values for each tick are stated on a new row.

5. Conclusions

We have demonstrated the design capabilities of the Esterel language by implementing a small safety-critical design. We illustrate many Esterel capabilities, concurrency, synchrony and data handling using C. We can conclude that Esterel is a suitable tool used to implement this system and similar due to the ease in which we can achieve concurrency. Although we undertook extensive manual testing we would suggest that formal verification methods were used to ensure the system is functionally correct if the design were to be used for an application.

Appendix

			TEST 2 -Mo	ove from OFF	to ON to OFF							
On	Off	Decume	Set	OuiskAssol	QuickDecel	Accel	Brook	Canad		CasicaCasad	ThrottleCond	Coulo of tota
FALSE	FALSE	Resume	FALSE	FALSE	FALSE	Accel 0	Break 0	Speed	0	CruiseSpeed	ThrottleCmd 0	CruiseStati
TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	0			35	35	0	
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	0			35	35	0	
FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	0			35	35	0	
		TES	T 3 - Move fro	om OFF to Of	to DISABLE t	o OFF						
On	Off	Resume	Set	QuickAccel	QuickDecel	Accel	Break	Speed		CruiseSpeed	ThrottleCmd	CruiseState
TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	0			35	35	0	
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	20			35	35	20	
FALSE	TRUE	FALSE	FALSE	FALSE	FALSE	0	0	3	35	35	0	
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	0	0	3	35	35	0	
		76	ST A - Mayo	from OFF to (ON to STBY to	OFF						
			31 4 - 141046	iloiii Orr to t	JN 10 3151 10	OFF						
On	Off	Resume	Set	QuickAccel	QuickDecel	Accel	Break	Speed			ThrottleCmd	
TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	0			35	35	0	
FALSE	FALSE	FALSE FALSE	FALSE	FALSE	FALSE	0			35 35	35 35	0	
FALSE	IRUE	PALSE	PALSE	FALSE	FALSE	U	0	3	35	35	0	
		TEST 5 -	Moving from	On to STBY to	ON with resu	ıme button						
On	Off	Resume	Set	QuickAccel	QuickDecel	Accel	Break	Speed			ThrottleCmd	
TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	0			35	35		
FALSE	FALSE	FALSE TRUE	FALSE	FALSE	FALSE	0			35 35	35 35	0	
· ALSE	FALSE	INVE	PLACE	PALSE	- ALJE	0			-	35	0	
		TEST 6b - Me	oving from O	N to STBY to I	DISABLE with	resume butto	n					
0-	0#	Danie	6-4	Outstate	Outstance	Accel	Beeck	Enno 1		p-1p-	Thomas's Co.	Contractor
On TRUE	Off	Resume FALSE	Set FALSE	QuickAccel FALSE	QuickDecel FALSE	Accel 0	Break	Speed 3	35	CruiseSpeed 35	ThrottleCmd 0	CruiseState
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	0			35	35	0	
FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	0			20	20	0	
		TEST 6a - Me	oving from O	N to STBY to I	DISABLE with	resume butto	n			CruiseSpeed	ThrottleCmd	CruiseState
On	Off	Resume	Set	QuickAccel	QuickDecel	Accel	Break	Speed				
TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	0			35	35	0	
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	0			35	35	0	
FALSE	FALSE	TRUE	FALSE	FALSE	FALSE	20	0	3	35	35	2	
		TES	7 - Move fr	om OFF to Of	N to DISABLE	to ON						
On	Off	Resume	Set	QuickAccel	QuickDecel	Accel	Break	Speed		CruiseSpeed	ThrottleCmd	CruiseState
TRUE	FALSE	FALSE	FALSE	FALSE	FALSE	0	0		35	35		
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	20			35	35	20	
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	0	0	3	35	35	0	- 2
TES	T 8 -All buttons	pressed (ex	cent off) in O	FF state (Exp	ect go to ON s	tate and igno	re all other b	uttons)				
	. o rai sattons	pressed (ex	, 0	- France (ump	ett go to on s	tate and igno						
On	Off	Resume	Set	QuickAccel	QuickDecel	Accel	Break	Speed			ThrottleCmd	CruiseState
FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	0			0	0	0	
TRUE	FALSE	TRUE	TRUE	TRUE	TRUE	0	0	3	35	35	0	
		TEST 9 - Se	t and resume	button (expe	ct Set to take	presedence)						
On	Off	Resume	Set									CruiseState
TRUE	FALSE	FALSE		QuickAccel	QuickDecel	Accel	Break	Speed		CruiseSpeed		
FALSE	FALSE	FALCE	FALSE	FALSE	FALSE	0	0	3	35	35	0	
FALSE	FALSE	FALSE	FALSE	FALSE FALSE	FALSE FALSE	0	20	3	35	35 35	0	:
	FALSE	FALSE TRUE		FALSE	FALSE	0	20	3		35	0	:
		TRUE	FALSE TRUE	FALSE FALSE	FALSE FALSE	0 0	0 20 0	3	35	35 35	0	:
	TEST	TRUE	FALSE TRUE	FALSE FALSE FALSE	FALSE FALSE FALSE	0 0 0 to take prese	0 20 0 edence)	3 3	35	35 35 34	0 0	
	TEST	TRUE 10 - Resume Resume	FALSE TRUE	FALSE FALSE FALSE QuickAccel (ex	FALSE FALSE FALSE Epect Resume	0 0 0 to take prese	20 0 edence)	3 3 3 Speed	35	35 35 34 CruiseSpeed	0 0 0 ThrottleCmd	CruiseState
On TRUE FALSE	TEST	TRUE	FALSE TRUE	FALSE FALSE FALSE	FALSE FALSE FALSE	0 0 0 to take prese	0 20 0 edence)	Speed	35	35 35 34	0 0	CruiseState
TRUE	Off FALSE	TRUE 10 - Resume Resume FALSE	FALSE TRUE button and C Set FALSE	FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE	FALSE FALSE FALSE Epect Resume QuickDecel FALSE	0 0 0 to take prese	0 20 0 edence) Break 0 20	3 3 3 Speed 3 3	35 34 35 35	35 35 34 CruiseSpeed 35	0 0 0 ThrottleCmd	CruiseState
TRUE FALSE	Off FALSE FALSE FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE	FALSE TRUE button and C Set FALSE FALSE FALSE	FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE FALSE FALSE TRUE	FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE	0 0 0 to take prese Accel 0 0 0	0 20 0 cdence) Break 0 20 0	3 3 3 Speed 3 3	35 34 35 35	35 35 34 CruiseSpeed 35 35	0 0 0 ThrottleCmd 0 20	CruiseState
TRUE FALSE	Off FALSE FALSE FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE	FALSE TRUE button and C Set FALSE FALSE FALSE	FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE FALSE FALSE TRUE	FALSE FALSE FALSE Epect Resume QuickDecel FALSE FALSE	0 0 0 to take prese Accel 0 0 0	0 20 0 cdence) Break 0 20 0	3 3 3 Speed 3 3	35 34 35 35	35 35 34 CruiseSpeed 35 35	0 0 0 ThrottleCmd 0 20	CruiseState
TRUE FALSE FALSE	Off FALSE FALSE FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE	FALSE TRUE button and C Set FALSE FALSE FALSE	FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE FALSE FALSE TRUE	FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE	0 0 0 to take prese Accel 0 0 0	0 20 0 cdence) Break 0 20 0	3 3 3 Speed 3 3	35 34 35 35	35 35 34 CruiseSpeed 35 35 37.5	0 0 0 ThrottleCmd 0 20 20.28	CruiseState
TRUE FALSE FALSE	Off FALSE FALSE FALSE TEST 11	TRUE 10 - Resume Resume FALSE FALSE TRUE QuickAccel	FALSE TRUE button and C Set FALSE FALSE FALSE button and C	FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE FALSE FALSE TRUE	FALSE FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE FALSE FALSE	to take prese Accel 0 0 0 cel to take pr	dence) Break 0 20 0 Break Break	Speed 3 3 3 3 Speed Speed	35 34 35 35	35 35 34 CruiseSpeed 35 35 37.5	0 0 0 ThrottleCmd 0 20	CruiseState CruiseState
TRUE FALSE FALSE	Off FALSE FALSE FALSE FALSE FALSE TEST 11 Off FALSE FALSE	TRUE 10 - Resume FALSE FALSE TRUE QuickAccel Resume FALSE FALSE FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE button and C Set FALSE Set FALSE	FALSE FALSE QuickAccel (ex QuickAccel FALSE TRUE QuickAccel (ex QuickAccel (ex QuickAccel (ex QuickAccel FALSE FALSE FALSE FALSE	FALSE FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE Pect QuickDecel FALSE FALSE FALSE FALSE FALSE	Accel Coel to take prese Accel Accel Accel Accel Accel Accel	Break 0 20 0 dence) Break 0 20 0 sesedence) Break 0 20 20 20 20 20	3 3 3 3 Speed 3 3 3 3 Speed 5 Speed 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6	35 34 35 35 35 35 35	25 35 35 34 CruiseSpeed 35 37.5 CruiseSpeed 3 35 37.5 CruiseSpeed 3 35 35 35 35	ThrottleCmd 0 20 20.28 ThrottleCmd 0 20.20	CruiseState CruiseState
TRUE FALSE FALSE	Off FALSE FALSE FALSE FALSE Off FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE FALSE button and C Set FALSE	FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE TRUE QuickDccel (ex QuickAccel	FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE QuickDecel QuickDecel FALSE	0 0 0 0 to take preserved 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Break 0 20 0 dence) Break 0 20 0 sesedence) Break 0 20 20 20 20 20	3 3 3 3 Speed 3 3 3 3 Speed 5 Speed 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6	35 34 35 35 35 35	35 35 34 CruiseSpeed 35 37.5 CruiseSpeed	ThrottleCmd 0 20 20.28 ThrottleCmd 0 20.20	CruiseState CruiseState
TRUE FALSE FALSE On TRUE FALSE	Off FALSE FALSE FALSE TEST 11 Off FALSE FALSE FALSE FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE FALSE FALSE FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	FALSE FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE FALSE TRUE tuickDccel (ex QuickAccel fALSE FALSE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU	FALSE FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE FALSE FALSE PALSE FALSE TALSE TALSE FALSE TALSE FALSE FALSE FALSE TALSE TRUE	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Break 0 20 0 edence) Break 0 20 0 esedence) Break 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 Speed 3 3 3 3 Speed 5 Speed 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6	35 34 35 35 35 35 35	25 35 35 34 CruiseSpeed 35 37.5 CruiseSpeed 3 35 37.5 CruiseSpeed 3 35 35 35 35	ThrottleCmd 0 20 20.28 ThrottleCmd 0 20.20	CruiseState
FALSE FALSE On TRUE FALSE	Off FALSE FALSE FALSE TEST 11 Off FALSE FALSE FALSE FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE FALSE FALSE FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	FALSE FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE FALSE TRUE tuickDccel (ex QuickAccel fALSE FALSE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU	FALSE FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE Pect QuickDecel FALSE FALSE FALSE FALSE FALSE	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Break 0 20 0 edence) Break 0 20 0 esedence) Break 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 Speed 3 3 3 3 Speed 5 Speed 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6	35 34 35 35 35 35 35	25 35 35 34 CruiseSpeed 35 37.5 CruiseSpeed 3 35 37.5 CruiseSpeed 3 35 35 35 35	ThrottleCmd 0 20 20.28 ThrottleCmd 0 20.20	CruiseState
TRUE FALSE FALSE On TRUE FALSE	Off FALSE FALSE FALSE TEST 11 Off FALSE FALSE FALSE FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE FALSE FALSE FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	FALSE FALSE FALSE VALCE FALSE QuickAccel (ex QuickAccel (ex FALSE FALSE TRUE QuickAccel (ex QuickAccel (ex QuickAccel (ex QuickAccel (ex ALSE FALSE TAUE TRUE	FALSE FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE FALSE FALSE PALSE FALSE TALSE TALSE FALSE TALSE FALSE FALSE FALSE TALSE TRUE	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Break 0 20 0 edence) Break 0 20 0 esedence) Break 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 3 3 3 Speed 3 3 3 3 Speed 5 Speed 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6	35 34 35 35 35 35 35	35 35 34 CruiseSpeed 35 37.5 CruiseSpeed 35 35	ThrottleCmd 0 20 20.28 ThrottleCmd 0 20.20	CruiseState
TRUE FALSE FALSE On TRUE FALSE FALSE On TRUE TRUE TRUE	OFF FALSE FALSE FALSE TEST 11 OFF FALSE FALSE FALSE FALSE FALSE FALSE FALSE TALSE FALSE FALSE	TRUE 10 - Resume FALSE FALSE TRUE - QuickAccel Resume FALSE FALSE FALSE FALSE FALSE EST 12 - Qui Resume FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE button and C Set FALSE FALSE button and C Set FALSE	FALSE FALSE LuickAccel (ex QuickAccel (ex FALSE FALSE FALSE TRUE UICKDCcel (ex QuickAccel (ex TRUE QuickAccel (ex QuickAccel (ex FALSE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU	FALSE FALSE FALSE FALSE pect Resume QuickDecel FALSE FALSE FALSE FALSE FALSE FALSE TRUE d speed limite QuickDecel FALSE TRUE	Accel Color to take prese Accel	Break Break Break Break Break Break Break Break	\$ Speed \$ 3 \$ 3 \$ 3 \$ 3 \$ 3 \$ 3 \$ 3 \$ 3 \$ 3 \$	35 34 4 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	35 35 34 CruiseSpeed 35 37,5 CruiseSpeed 35 32,5 CruiseSpeed 35 32,5	ThrottleCmd 0 20 20.28 ThrottleCmd 0 1 ThrottleCmd 0 1 ThrottleCmd 0 1 ThrottleCmd 0 1	CruiseState CruiseState CruiseState
TRUE FALSE FALSE On TRUE FALSE FALSE	Off FALSE FALSE FALSE TEST 11 Off FALSE	TRUE 10 - Resume FALSE FALSE TRUE - QuickAccel Resume FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE FALSE FALSE Set FALSE	FALSE FALSE FALSE QuickAccel (ex QuickAccel FALSE TRUE UnickAccel (ex TRUE TRUE QuickAccel (ex QuickAccel (ex QuickAccel (ex QuickAccel (ex FALSE	FALSE FALSE FALSE GUICKDecel FALSE	Accel	Break O O Break O O Break O Break O Break O Break O O O Break O O O O O O O O O O O O O	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	25 35 35 34 25 25 25 25 25 25 25 25 25 25 25 25 25	ThrottleCmd 0 20 20.28 ThrottleCmd 0 1 ThrottleCmd 0 0 0 ThrottleCmd 0 0 0	CruiseState CruiseState CruiseState
TRUE FALSE FALSE On TRUE FALSE FALSE	OFF FALSE FALSE FALSE TEST 11 OFF FALSE FALSE FALSE FALSE FALSE FALSE FALSE TALSE FALSE FALSE	TRUE 10 - Resume FALSE FALSE TRUE - QuickAccel Resume FALSE FALSE FALSE FALSE FALSE EST 12 - Qui Resume FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE button and C Set FALSE FALSE button and C Set FALSE	FALSE FALSE LuickAccel (ex QuickAccel (ex FALSE FALSE FALSE TRUE UICKDCcel (ex QuickAccel (ex TRUE QuickAccel (ex QuickAccel (ex FALSE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU	FALSE FALSE FALSE FALSE pect Resume QuickDecel FALSE FALSE FALSE FALSE FALSE FALSE TRUE d speed limite QuickDecel FALSE TRUE	Accel Color to take prese Accel	Break O O Break O O Break O Break O Break O Break O O O Break O O O O O O O O O O O O O	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	35 35 34 CruiseSpeed 35 37,5 CruiseSpeed 35 32,5 CruiseSpeed 35 32,5	ThrottleCmd 0 20 20.28 ThrottleCmd 0 1 ThrottleCmd 0 0 0 ThrottleCmd 0 0 0	CruiseState CruiseState CruiseState
TRUE FALSE FALSE ON TRUE FALSE FALSE	TEST Off FALSE FALSE FALSE TEST 11 Off FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	TRUE 10 - Resume FALSE FALSE FALSE TRUE QuickAccel Resume FALSE	FALSE TRUE button and O Set FALSE	FALSE FALSE ValickAccel (ex QuickAccel (ex FALSE FALSE TRUE UnickDccel (ex FALSE FALSE FALSE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU	FALSE FALSE FALSE GUICKDecel FALSE	Accel d to speed m Accel 0 0 0 0 0 0 0 0 0 0 0 0 0	0 20 0 0 0 0 0 0 0 0	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	25 35 35 34 25 25 25 25 25 25 25 25 25 25 25 25 25	ThrottleCmd 0 20 20.28 ThrottleCmd 0 1 ThrottleCmd 0 0 0 ThrottleCmd 0 0 0	CruiseState CruiseState CruiseState
TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE FALSE FALSE	TEST Off FALSE FALSE FALSE FALSE FALSE 1 Off FALSE	TRUE 10 - Resume FALSE FALSE FALSE TRUE - QuickAccel Resume FALSE FALSE FALSE FALSE FALSE EST 12 - Qui RESUME FALSE	FALSE TRUE button and C Set FALSE FALSE button and Q Set FALSE	FALSE FALSE FALSE ValickAccel (experiment) GuickAccel (experiment) FALSE FALSE TRUE GuickAccel (experiment) FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU	FALSE FALSE FALSE pect Resume QuickDecel FALSE FALSE FALSE PALSE PALSE FALSE	Accel Accel Color of to take present of the	0 20 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	25 35 35 34 25 25 25 25 25 25 25 25 25 25 25 25 25	ThrottleCmd 0 20.20.28 ThrottleCmd 0 20.20.28 ThrottleCmd 0 0 0 0 0 0 0	CruiseState CruiseState CruiseState
TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE ON ON	TEST Off FALSE FALSE FALSE TEST 11 Off FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE	FALSE TRUE button and C Set FALSE	FALSE FALSE FALSE FALSE QuickAccel (ex- QuickAccel) FALSE TRUE QuickAccel QuickAccel FALSE TRUE QuickAccel FALSE TRUE on pressed an QuickAccel FALSE TRUE QuickAccel FALSE TRUE On pressed an QuickAccel GALSE TRUE On pressed an QuickAccel GALSE TRUE On pressed an QuickAccel QuickAccel	FALSE FALSE FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE d speed limite QuickDecel FALSE FALSE FALSE TRUE d speed limite CluickDecel FALSE FALSE FALSE GuickDecel FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE GuickDecel GuickDecel	O O O O O O O O O O O O O O O O O O O	Break 0 20 0 esedence) Break 0 20 0 seedence) Break 0 0 0 0 ax Break 0 0 0 0 Break	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	35 35 35 36 CruiseSpeed 37.5 CruiseSpeed 37.5 CruiseSpeed 37.5 CruiseSpeed 31.5 CruiseSpeed	ThrottleCmd ThrottleCmd 20.28 ThrottleCmd 0 20.00 ThrottleCmd 0 0 ThrottleCmd 0 0 ThrottleCmd	CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE TRUE FALSE ON TRUE TRUE	TEST Off FALSE FALSE FALSE FALSE FALSE Off FALSE	TRUE 10 - Resume FALSE FALSE FALSE TRUE QuickAccel Resume FALSE FALSE FALSE FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE button and Q Set FALSE	FALSE FALSE FALSE FALSE LuickAccel (ex- QuickAccel) FALSE FALSE TRUE LuickDccel (ex- QuickAccel) FALSE FALSE FALSE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU	FALSE FALSE FALSE FALSE PALSE QuickDecel FALSE	Accel Accel O O O O O O O O O O O O O	0 20 10 10 10 10 10 10	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 35 35 35 35 35 35 35 35 35 35 35 35 3	35 35 34 CruiseSpeed 35 37.5 CruiseSpeed 35 32.5 CruiseSpeed 35 149 150 CruiseSpeed 35	ThrottleCmd 0 20 20.28 ThrottleCmd 0 20 1 ThrottleCmd 0 0 ThrottleCmd 0 ThrottleCmd 0 ThrottleCmd 0 ThrottleCmd 0 ThrottleCmd	CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE On TRUE FALSE FALSE On TRUE FALSE FALSE On TRUE FALSE FALSE	TEST Off FALSE FALSE FALSE TEST 11 Off FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE	FALSE TRUE button and C Set FALSE	FALSE FALSE FALSE FALSE QuickAccel (ex- QuickAccel) FALSE TRUE QuickAccel QuickAccel FALSE TRUE QuickAccel FALSE TRUE on pressed an QuickAccel FALSE TRUE QuickAccel FALSE TRUE On pressed an QuickAccel GALSE TRUE On pressed an QuickAccel GALSE TRUE On pressed an QuickAccel QuickAccel	FALSE FALSE FALSE FALSE FALSE QuickDecel FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE d speed limite QuickDecel FALSE FALSE FALSE TRUE d speed limite CluickDecel FALSE FALSE FALSE GuickDecel FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE GuickDecel GuickDecel	O O O O O O O O O O O O O O O O O O O	Break 0 20 0 seesedence) Break 0 20 0 ax Break 0 0 0 0 ax Break 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Speed	35 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	35 35 35 36 CruiseSpeed 37.5 CruiseSpeed 37.5 CruiseSpeed 37.5 CruiseSpeed 31.5 CruiseSpeed	ThrottleCmd 0 20 20 20 20 30 ThrottleCmd 0 0 0 ThrottleCmd 0 0 ThrottleCmd 0 0 ThrottleCmd 0 0 0	CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE TRUE FALSE ON TRUE TRUE	TEST OFF FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE	FALSE TRUE button and C Set FALSE	FALSE FALSE FALSE FALSE QuickAccel (ex QuickAccel (ex FALSE FALSE TRUE QuickAccel (ex QuickAccel fALSE TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRU	FALSE FALSE FALSE FALSE FALSE GuickDecel FALSE FALSE FALSE FALSE FALSE FALSE TRUE d speed limite GuickDecel FALSE TRUE d speed limite FALSE	Accel d to speed m Accel 0 0 0 0 0 0 0 0 0 0 0 0 0	Break 0 20 0 seesedence) Break 0 20 0 ax Break 0 0 0 0 ax Break 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Speed	35 34 35 35 35 35 35 35 35 35 35 35 35 35 35	35 36 37 37 37 37 37 37 37 37 37 37 37 37 37	ThrottleCmd 0 20 20 20 20 30 ThrottleCmd 0 0 0 ThrottleCmd 0 0 ThrottleCmd 0 0 ThrottleCmd 0 0 0	CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE TRUE FALSE	TEST OFF FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE QuickAccel Resume FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE button and Q Set FALSE	FALSE FALSE FALSE QuickAccel (ex QuickAccel) FALSE FALSE TRUE QuickAccel FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE On pressed an QuickAccel FALSE	FALSE FALSE FALSE FALSE FALSE GuickDecel FALSE FALSE FALSE FALSE FALSE FALSE TRUE d speed limite GuickDecel FALSE TRUE d speed limite FALSE	accel accel botake prese Accel col col do do do do do do do do do	Break 0 20 0 seesedence) Break 0 20 0 ax Break 0 0 0 0 ax Break 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Speed	35 34 35 35 35 35 35 35 35 35 35 35 35 35 35	35 36 37 37 37 37 37 37 37 37 37 37 37 37 37	ThrottleCmd 0 20 20 20 20 30 ThrottleCmd 0 0 0 ThrottleCmd 0 0 ThrottleCmd 0 0 ThrottleCmd 0 0 0	CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE	TEST Off FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE button and Q Set FALSE	FALSE FALSE FALSE UnickAccel (experiment) GuickAccel (experiment) FALSE FALSE TRUE On pressed an CuickAccel FALSE	FALSE FALSE FALSE FALSE PALSE QuickDecel FALSE TRUE FALSE F	Accel Accel O O O O O O O O O O O O O	0 20 0 0 0 0 0 0 0 0	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 34 35 35 35 35 35 35 35 35 35 35 35 35 35	25 35 35 34 27 27 27 27 27 27 27 27 27 27 27 27 27	ThrottleCmd 0 20 20.28 ThrottleCmd 0 20 0 ThrottleCmd 0 0 ThrottleCmd 0 0 0 ThrottleCmd 0 0 0 0	CruiseState CruiseState CruiseState CruiseState
TRUE FALSE ON TRUE FALSE FALSE TRUE FALSE TRUE FALSE FALSE ALSE	TEST Off FALSE FALSE FALSE TEST 11 Off FALSE Off FALSE FALSE FALSE OFF	TRUE 10 - Resume Resume FALSE FALSE FALSE FALSE RESUME FALSE	FALSE TRUE button and C Set FALSE	FALSE FALSE FALSE UnickAccel (experiment) GuickAccel (experiment) FALSE FALSE TRUE On pressed an CuickAccel FALSE	FALSE FALSE FALSE PALSE QuickDecel FALSE	accel accel botake prese Accel col col do do do do do do do do do	Break Break 0 20 0 esedence) Break 0 20 0 ax Break 0 0 0 ax Break 0 0 0 Break Break Break	3 3 3 3 3 3 3 3 3 3	35 34 34 35 35 35 35 35 35 35 35 35 35 35 35 35	25 35 35 34 27 27 27 27 27 27 27 27 27 27 27 27 27	ThrottleCmd ThrottleCmd O 20 20.28 ThrottleCmd O 0 ThrottleCmd O 0 ThrottleCmd O 0 ThrottleCmd O ThrottleCmd O ThrottleCmd	CruiseState CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE ON TRUE FALSE FALSE FALSE	TEST Off FALSE	TRUE 10 - Resume Resume FALSE FALSE TRUE - QuickAccel Resume FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE button and Q Set FALSE	FALSE FALSE FALSE FALSE RuickAccel (ex- QuickAccel) FALSE FALSE TRUE RuickDecel (ex- QuickAccel) FALSE TRUE RuickAccel FALSE TRUE RuickAccel FALSE	FALSE FALSE FALSE FALSE FALSE GuickDecel FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE d speed limite QuickDecel FALSE FALSE TRUE d speed limite TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE	o to take prese Accel O O O Cel to take pr Accel Accel O O O d to speed m Accel Accel O O O d to speed m Accel Accel	0 20 0 0 0 0 0 0 0 0	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 35 35 35 35 35 35 35 35 35 35 35 35 3	35 35 34 CruiseSpeed 37.5 CruiseSpeed 37.5 CruiseSpeed 32.5 CruiseSpeed 31.49 150 CruiseSpeed 33.5 CruiseSpeed 3.5 CruiseSpeed 3.7 CruiseSpeed	O	CruiseState CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE On TRUE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	TEST Off FALSE	TRUE 10 - Resume Resume FALSE	FALSE button and C Set FALSE FALSE button and C Set FALSE ckAccel button FALSE FALSE set FALSE	FALSE FALSE FALSE LuickAccel (experiment) CuickAccel (experiment) FALSE FALSE FALSE TRUE UnickDccel (experiment) TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE	FALSE FALSE FALSE FALSE PALSE QuickDecel FALSE TRUE d speed limite FALSE	Accel Accel O O O O O O O O O O O O O	0 20 0 0 0 0 0 0 0 0	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 35 35 35 35 35 35 35 35 35 35 35 35 3	25 35 35 34 34 34 35 35 35 37.5 37.5 27.5 27.5 27.5 27.5 27.5 27.5 27.5 2	O	CruiseState CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE On TRUE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE	TEST Off FALSE	TRUE 10 - Resume Resume FALSE	FALSE button and C Set FALSE FALSE FALSE button and C Set FALSE ckAccel button FALSE	FALSE FALSE FALSE LuickAccel (experiment) CuickAccel (experiment) FALSE FALSE FALSE TRUE UnickDccel (experiment) TRUE TRUE TRUE TRUE TRUE TRUE TRUE TRUE	FALSE FALSE FALSE FALSE FALSE PALSE GUICKDECE FALSE TRUE d speed limite QuickDecel FALSE F	Accel Accel O O O O O O O O O O O O O	0 20 0 0 0 0 0 0 0 0	Speed 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	35 35 35 35 35 35 35 35 35 35 35 35 35 3	25 35 35 34 34 34 35 35 35 37.5 37.5 27.5 27.5 27.5 27.5 27.5 27.5 27.5 2	O	CruiseState CruiseState CruiseState CruiseState CruiseState
TRUE FALSE OD TRUE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE TRUE	TEST Off FALSE	TRUE 10 - Resume Resume FALSE FALSE FALSE FALSE RESUME FALSE	FALSE TRUE button and C Set FALSE	FALSE FALSE FALSE FALSE GuickAccel (experiments) FALSE FALSE FALSE FALSE TRUE GuickAccel FALSE TRUE On pressed an QuickAccel FALSE	FALSE FALSE FALSE FALSE SPECT Resume QuickDecel FALSE FALSE FALSE FALSE PECT QuickDecel FALSE FALSE TRUE d speed limite GuickDecel FALSE	accel Accel O O O O O O O O O O O O O	0 20 0 0 0 0 0 0 0 0	Speed Spee	35 35 35 35 35 35 35 35 35 35 35 35 35 3	CruiseSpeed	ThrottleCmd 0 0 20 20.28 ThrottleCmd 0 0 10 10 10 10 10 10 10 10 10 10 10 10	CruiseState CruiseState CruiseState CruiseState
TRUE FALSE FALSE OON TRUE FALSE FALSE FALSE TRUE FALSE TRUE OON OON TRUE FALSE FALSE TRUE	TEST Off FALSE Off FALSE FALSE FALSE Off	TRUE 10 - Resume Resume FALSE	FALSE TRUE button and C Set FALSE FALSE FALSE button and Q Set FALSE	FALSE FALSE FALSE FALSE UnickAccel (experiment) FALSE FALSE FALSE TRUE QuickAccel FALSE	FALSE FALSE FALSE FALSE FALSE PALSE FALSE CUICKDECCE QUICKDECCE QUICKD	Accel Accel O O O O O O O O O O O O O	0 20 0 0 0 0 0 0 0 0	Speed Spee	355 344 355 355 355 355 355 355 355 355	35 35 36 37 37 37 37 37 37 37 37 37 37 37 37 37	ThrottleCmd ThrottleCmd O 20 20 20 ThrottleCmd O O ThrottleCmd O O ThrottleCmd O O ThrottleCmd O ThrottleCmd	CruiseState CruiseState CruiseState CruiseState CruiseState
TRUE FALSE OD TRUE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE TRUE	TEST Off FALSE	TRUE 10 - Resume Resume FALSE FALSE FALSE FALSE RESUME FALSE	FALSE TRUE button and C Set FALSE	FALSE FALSE FALSE FALSE GuickAccel (experiments) FALSE FALSE FALSE FALSE TRUE GuickAccel FALSE TRUE On pressed an QuickAccel FALSE	FALSE FALSE FALSE FALSE SPECT Resume QuickDecel FALSE FALSE FALSE FALSE PECT QuickDecel FALSE FALSE TRUE d speed limite GuickDecel FALSE	accel Accel O O O O O O O O O O O O O	Break	3 3 3 3 3 3 3 3 3 3	35 35 35 35 35 35 35 35 35 35 35 35 35 3	CruiseSpeed	ThrottleCmd ThrottleCmd	CruiseStall CruiseStall CruiseStall CruiseStall CruiseStall